In the Claims

1.- 11 (Cancelled)

12. (Previously presented) A purified mutant calcium-binding protein comprising an amino acid sequence as set forth in SEQ ID NO: 2 and having a conservative substitution at residue 127 or 172

13. – 22. (Cancelled)

23. (Previously presented) An *in vitro* method of reducing apoptosis in neuronal cells relative to apoptosis caused by presenilin 2 comprising:

administering to the neuronal cells a mutated calcium-binding protein, wherein the mutated calcium-binding protein comprises a replacement at residue 127 of SEQ ID NO: 2, and wherein an acidic residue is replaced with its amine counterpart.

24. (Previously presented) An *in vitro* method to reduce induced apoptosis relative to apoptosis caused by presenilin 2, the method comprising:

administering an effective amount of the mutant calcium-binding protein comprising the amino acid sequence as set forth in SEQ ID NO: 2, having a conservative amino acid substitution at position 172.

25. (Previously presented) An *in vitro* method to reduce induced apoptosis relative to apoptosis caused by presenilin 2 alone, the method comprising:

contacting cells presenilin 2 comprising an amino acid sequence as set forth in SEQ ID NO: 1 with a mutated calcium-binding protein of SEQ ID NO: 2, and wherein the calcium-binding hands includes a conservative amino acid substitution at residue 127 or 172.

26. (Cancelled)

27. (Previously presented) The purified mutant calcium-binding protein according to claim 12, wherein the mutation comprises replacement of an acidic residue with its amine counterpart.

28. (Previously presented) The purified mutant calcium-binding protein according to claim 27, wherein the substitution of amino acid residue at position 127.

29. (Currently amended) The purified mutant calcium-binding protein according to claim 28, further comprising substitutions at amino acid residues ~~2 and~~ 172.

30. – 32. (Cancelled)

33. (Previously presented) A purified mutant calcium-binding protein comprising an amino acid sequence as set forth in SEQ ID NO: 2 and having a substitution at residue 172 and wherein the substitution comprises replacement of an acidic residue with its amine counterpart.

34. (Previously presented) An *in vitro* method to reduce induced apoptosis relative to apoptosis caused by presenilin 2, the method comprising:

contacting cells with an effective amount of the mutant calcium-binding protein comprising an amino acid sequence as set forth in SEQ ID NO: 1 with the mutated calcium-binding protein, wherein the mutated calcium-binding protein comprises a substitution of an amino acid residue in the calcium-binding EF-hands of SEQ ID NO: 2, and wherein the substitution comprises replacement of an acidic residue with its amine counterpart at residue 127.

35. (Previously presented) A purified mutant calcium-binding protein comprising an amino acid sequence as set forth in SEQ ID NO: 2 and having a replacement of an acidic residue with its amine counterpart, wherein the replacement is at residue 127.

36. (New) A *in vitro* method to identify test substances that affect the level of apoptosis caused by the interaction of presenilin 2 (PS2) with calmyrin in cells, the method comprising:

(a) contacting cells with presenilin 2 comprising an amino acid sequence as set forth in SEQ ID NO: 1 with a calcium-binding protein of SEQ ID NO: 2, and wherein the calcium-binding hands includes a conservative amino acid substitution at residue 127 or 172;

(b) determining the level of apoptosis in the cells;

(c) contacting cells with presenilin 2 comprising an amino acid sequence as set forth in SEQ ID NO: 1 with a calcium-binding protein of SEQ ID NO: 2 and a test compound; and

(d) determining the level of apoptosis; and

(e) comparing the level of apoptosis determined in step (b) to that of step (d) to determine the effectiveness of the test substance.